

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
 United States Patent and Trademark
 Office
 Box PCT
 Washington, D.C.20231
 ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 08 September 1999 (08.09.99)	
International application No. PCT/IL99/00024	Applicant's or agent's file reference 97262-PCT
International filing date (day/month/year) 14 January 1999 (14.01.99)	Priority date (day/month/year) 16 January 1998 (16.01.98)
Applicant SEIDEL, Pessach	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

30 July 1999 (30.07.99)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Lazar Joseph Panakal Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY

PCT**NOTIFICATION CONCERNING
AMENDMENTS OF THE CLAIMS****(PCT Rule 62 and
Administrative Instructions, Section 417)**

From the INTERNATIONAL BUREAU

To:

**Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ÉTATS-UNIS D'AMÉRIQUE**

in its capacity as International Preliminary Examining Authority

Date of mailing (day/month/year)

08 September 1999 (08.09.99)

International application No.

PCT/IL99/00024

International filing date (day/month/year)

14 January 1999 (14.01.99)

Applicant

SEIDEL, Pessach

The International Bureau hereby informs the International Preliminary Examining Authority that no amendments under Article 19 have been received by the International Bureau (Administrative Instructions, Section 417).

**The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland**

Facsimile No. (41-22) 740.14.35

Authorized officer

Lazar Joseph Panakal

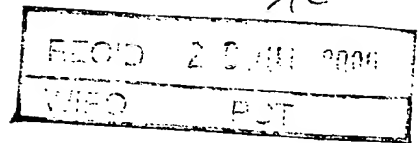
Telephone No. (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)



5620

09/600260

Applicant's or agent's file reference 97262-PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IL99/00024	International filing date (day/month/year) 14 JANUARY 1999	Priority date (day/month/year) 16 JANUARY 1998
International Patent Classification (IPC) or national classification and IPC IPC(7): F28F 3/08, 7/00, 9/00 and US Cl.: 165/47, 67, 78, 167		
Applicant SEIDEL, PESSACH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

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Date of submission of the demand 30 JULY 1999	Date of completion of this report 10 JUNE 2000
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer Christopher Atkinson <i>Diana Smith</i> Telephone No. (703) 308-2603

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/IL99/00024

I. Basis of the report1. With regard to the **elements** of the international application:*☐ the international application as originally filed☒ the description:

pages (See Attached) _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☒ the claims:

pages (See Attached) _____, as originally filed
pages _____, as amended (together with any statement) under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____

☒ the drawings:

pages (See Attached) _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☒ the sequence listing part of the description:

pages (See Attached) _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:☐ contained in the international application in printed form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. ☒ The amendments have resulted in the cancellation of:☒ the description, pages NONE☒ the claims, Nos. NONE☒ the drawings, sheets/fig NONE5. ☐ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

**Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/IL99/00024

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. statement**

Novelty (N)	Claims <u>1-20</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-20</u>	NO
Industrial Applicability (IA)	Claims <u>1-20</u>	YES
	Claims <u>NONE</u>	NO

2. citations and explanations (Rule 70.7)

Claims 1-20 lack an inventive step under PCT Article 33(3) as being obvious over Almqvist in view of Nakamura. To employ in Almqvist a resilient member would not involve an inventive step since it is well known to have a resilient member between the plates as taught by Nakamura.

Claims 1-20 meet the criteria as set forth by PCT Article 33(2).

Claims 1-20 meet industrial applicability as defined by PCT Article 33(4).

----- NEW CITATIONS -----

US 5,178,212 A (NAKAMURA) 12 January 1993, see entire document.

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

I. BASIS OF REPORT:

This report has been drawn on the basis of the description,
page(s) 1-17, as originally filed.
page(s) NONE, filed with the demand.
and additional amendments:
NONE

This report has been drawn on the basis of the claims,
page(s) 19-22, as originally filed.
page(s) NONE, as amended under Article 19.
page(s) NONE, filed with the demand.
and additional amendments:
Page 18, filed with the letter of 25 May 2000.

This report has been drawn on the basis of the drawings,
page(s) 1-20, as originally filed.
page(s) NONE, filed with the demand.
and additional amendments:
NONE

This report has been drawn on the basis of the sequence listing part of the description:
page(s) NONE, as originally filed.
pages(s) NONE, filed with the demand.
and additional amendments:
NONE

PCT/IL99/00024
IPEA/US 25 MAY 2000

CLAIMS

1. A flat plate heat exchanger which includes:
a support structure having elongate support apparatus; and
a plurality of generally flat plate members formed of a heat conductive material, and arranged for attachment to said support apparatus, so as to be supported thereby,
each said plate member including at least one support engagement portion for permitting snap coupling between said plate member and said elongate support apparatus, wherein each said support engagement portion includes at least one resilient member formed integrally with said plate member, which is arranged for flexing in a direction which is both lateral to the direction of coupling and substantially parallel to the plane of said plate member.
2. A flat plate heat exchanger according to claim 1, wherein said support apparatus has a known width, and each said support engagement portion includes:
a recess formed in a predetermined edge portion of said plate member and terminating in an opening located at said edge, wherein said recess is configured to at least partially accommodate the cross-section of said support apparatus, and
at least one lateral protrusion partially extending laterally across said recess, operative, in the absence of at least a predetermined lateral flexure force applied thereto, to prevent coupling or de-coupling of said plate member from said support apparatus.
3. A flat plate heat exchanger according to claim 2, wherein at least one of said lateral protrusions is formed on said at least one resilient member.
4. A flat plate heat exchanger according to claim 1, wherein said support apparatus has formed therein an opening of known width, and a predetermined edge portion of said plate member is configured for entry into said opening, and wherein said at least one support engagement portion is a pair of generally outward-facing lateral protrusions, the distance therebetween being greater than the width of the opening in said support apparatus, thereby, in the absence of at least a predetermined lateral flexure force, preventing coupling or de-coupling of said plate member from said support apparatus.

AMENDED SHEET

09600260
3726

PATENT COOPERATION TREATY

REC'D 14 SEP 2000

PCT

WIPO

PCT

CORRECTED

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

3743

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 97262-PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IL99/00024	International filing date (day/month/year) 14 JANUARY 1999	Priority date (day/month/year) 16 JANUARY 1998
International Patent Classification (IPC) or national classification and IPC IPC(7): F28F 3/08, 7/00, 9/00 and US Cl.: 165/47, 67, 78, 167		
Applicant SEIDEL, PESSACH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

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- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
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- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

CORRECTED
VERSION

Date of submission of the demand 30 JULY 1999	Date of completion of this report 10 JUNE 2000
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer Christopher Atkinson <i>Dian Imutz</i> Telephone No. (703) 308-2603

Form PCT/IPEA/409 (cover sheet) (July 1998)*

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/IL99/00024

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
pages (See Attached) _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the claims:
pages (See Attached) _____, as originally filed
pages _____, as amended (together with any statement) under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the drawings:
pages (See Attached) _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the sequence listing part of the description:
pages (See Attached) _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages NONE
- ☒ the claims, Nos. NONE
- ☒ the drawings, sheets/fig. NONE

5. ☐ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

**Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/IL99/00024

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. statement**

Novelty (N)

Claims NONE YESClaims 1-20 NO

Inventive Step (IS)

Claims NONE YESClaims 1-20 NO

Industrial Applicability (IA)

Claims 1-20 YESClaims NONE NO**2. citations and explanations (Rule 70.7)**

Claims 1-20 lack novelty under PCT Article 33(2) as being anticipated by Jan-Ove et al. The device of Jan-Ove et.al., in figures 1-5, in the Abstract and in column 2, line 46 through column 3, line 7, discloses the claimed invention.

Claims 1-20 meet industrial applicability as defined by PCT Article 33(4).

----- NEW CITATIONS -----

US 4,804,040 A (JAN-OVE et al) 14 February 1989, see figures 1-5, the Abstract, and column 2, line 46 through column 3, line 7.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/IL99/00024

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

I. BASIS OF REPORT:

This report has been drawn on the basis of the description,
page(s) 1-17, as originally filed.
page(s) NONE, filed with the demand.
and additional amendments:
NONE

This report has been drawn on the basis of the claims,
page(s) 19-22, as originally filed.
page(s) NONE, as amended under Article 19.
page(s) NONE, filed with the demand.
and additional amendments:
Page 18, filed with the letter of 25 May 2000.

This report has been drawn on the basis of the drawings,
page(s) 1-20, as originally filed.
page(s) NONE, filed with the demand.
and additional amendments:
NONE

This report has been drawn on the basis of the sequence listing part of the description:
page(s) NONE, as originally filed.
page(s) NONE, filed with the demand.
and additional amendments:
NONE

CLAIMS

PCT/IL99/00024
IPEA/US 25 MAY 2000

1. A flat plate heat exchanger which includes:
a support structure having elongate support apparatus; and
a plurality of generally flat plate members formed of a heat conductive material, and arranged for attachment to said support apparatus, so as to be supported thereby,
each said plate member including at least one support engagement portion for permitting snap coupling between said plate member and said elongate support apparatus, wherein each said support engagement portion includes at least one resilient member formed integrally with said plate member, which is arranged for flexing in a direction which is both lateral to the direction of coupling and substantially parallel to the plane of said plate member.
2. A flat plate heat exchanger according to claim 1, wherein said support apparatus has a known width, and each said support engagement portion includes:
a recess formed in a predetermined edge portion of said plate member and terminating in an opening located at said edge, wherein said recess is configured to at least partially accommodate the cross-section of said support apparatus, and
at least one lateral protrusion partially extending laterally across said recess, operative, in the absence of at least a predetermined lateral flexure force applied thereto, to prevent coupling or de-coupling of said plate member from said support apparatus.
3. A flat plate heat exchanger according to claim 2, wherein at least one of said lateral protrusions is formed on said at least one resilient member.
4. A flat plate heat exchanger according to claim 1, wherein said support apparatus has formed therein an opening of known width, and a predetermined edge portion of said plate member is configured for entry into said opening, and wherein said at least one support engagement portion is a pair of generally outward-facing lateral protrusions, the distance therebetween being greater than the width of the opening in said support apparatus, thereby, in the absence of at least a predetermined lateral flexure force, preventing coupling or de-coupling of said plate member from said support apparatus.

AMENDED SHEET

CLAIMS

1. A flat plate heat exchanger which includes:
a support structure having elongate support apparatus; and
5 a plurality of generally flat plate members formed of a heat conductive material, and arranged for attachment to said support apparatus, so as to be supported thereby,
each said plate member including at least one support engagement portion for permitting snap coupling between said plate member and said elongate support
10 apparatus, and including at least one resilient member arranged for flexing in a direction which is both lateral to the direction of coupling and substantially parallel to the plane of said plate member.
2. A flat plate heat exchanger according to claim 1, wherein said support
15 apparatus has a known width, and each said support engagement portion includes:
a recess formed in a predetermined edge portion of said plate member and terminating in an opening located at said edge, wherein said recess is configured to at least partially accommodate the cross-section of said support apparatus, and
at least one lateral protrusion partially extending laterally across said recess,
20 operative, in the absence of at least a predetermined lateral flexure force applied thereto, to prevent coupling or de-coupling of said plate member from said support apparatus.
3. A flat plate heat exchanger according to claim 2, wherein at least one of said
25 lateral protrusions is formed on said at least one resilient member.
4. A flat plate heat exchanger according to claim 1, wherein said support
apparatus has formed therein an opening of known width, and a predetermined
edge portion of said plate member is configured for entry into said opening, and
30 wherein said at least one support engagement portion is a pair of generally outward-facing lateral protrusions, the distance therebetween being greater than the width of the opening in said support apparatus, thereby, in the absence of at least a predetermined lateral flexure force, preventing coupling or de-coupling of said plate member from said support apparatus.

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FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
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AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Larvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
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DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL99/00024

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : F28F 3/08, 7/00, 9/00

US CL : 165/47, 67, 78, 167

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 165/47, 67, 78, 167

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3,448,796 A (USHER) 10 June 1969, see figures 1-4.	1-2, 4, 7-8, 10-12, 14, 17-18 and 20
Y	GB 1,244,724 A (BAIN) 02 September 1971 (02 - 09- 71), figures 1-7.	3, 5-6, 9, 13, 15-16 and 19
X	US 4,090,556 A (ALMQVIST) 23 May 1978, see figures 1 and 2.	1-2, 7-12, 14 and 17-20
A	US 2,601,974 A (HYTTE) 01 July 1952, see figures 1-4.	1-20
A	US 2,619,329 A (NEWHALL) 25 November 1952, see figures 1-5.	1-20

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

B earlier document published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

Z

document member of the same patent family

Date of the actual completion of the international search

07 MAY 1999

Date of mailing of the international search report

28 MAY 1999

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

CHRISTOPHER ATKINSON

Telephone No. (703) 308-2603